

Patent

**IN THE CLAIMS**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) In an implantable cardiac device, a method for determining heart rate recovery of a patient during exercise, said method comprising:

(a) monitoring a changing heart rate of the patient and producing heart rate measurements;

(b) ~~identifying~~ recording a monitored heart rate in the implantable cardiac device as a first heart rate when at least one of the following conditions occurs: (i) at least one heart rate measurement exceeds a first heart rate measurement threshold and (ii) an activity level of the patient exceeds a first activity threshold;

(c) ~~identifying~~ recording a monitored heart rate in the implantable cardiac device as a second heart rate when at least one of the following conditions occurs: (i) at least one heart rate measurement falls below a second heart rate measurement threshold and (ii) an activity level of the patient falls below a second activity threshold; and

(d) ~~using the first heart rate and the second heart rate~~ implantable cardiac device to determine a measure of heart rate recovery based on the first heart rate and the second heart rate and storing the measure of heart rate recovery in the implantable cardiac device.

2. (Currently Amended) The method of claim 1, wherein step (b) comprises ~~identifying~~ recording the first heart rate when at least one heart rate measurement exceeds the first heart rate measurement threshold for a predetermined period of time sufficient for the heart to react to exercise.

3. (Currently Amended) The method of claim 2, wherein step (a) comprises producing a heart rate intensity and step (b) comprises ~~identifying~~ recording the first heart rate when, for the predetermined period of time, heart rate intensity exceeds a heart rate intensity threshold.

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4. (Currently Amended) The method of claim 2, wherein step (b) comprises ~~identifying~~ recording the first heart rate when, for the predetermined period of time, an average value of at least one heart rate measurement exceeds the first heart rate measurement threshold.

5. (Currently Amended) The method of claim 4, wherein step (b) comprises ~~identifying~~ recording the first heart rate when, for the predetermined period of time, an average heart rate intensity exceeds a heart rate intensity threshold.

6. (Withdrawn) The method of claim 1, wherein step (b) comprises identifying the first heart rate when the activity level exceeds the first activity threshold for a predetermined period of time.

7. (Withdrawn) The method of claim 6, wherein step (b) comprises identifying the first heart rate when, for the predetermined period of time, an average activity level exceeds the first activity threshold.

8. (Withdrawn) The method of claim 1, wherein step (c) comprises identifying the second heart rate when the activity level falls below the second activity threshold for a predetermined period of time.

9. (Withdrawn) The method of claim 8, wherein step (c) comprises identifying the second heart rate when, for the predetermined period of time, an average activity level falls below the second activity threshold.

10. (Withdrawn) The method of claim 1, wherein step (c) comprises identifying the second heart rate when, after a predetermined period of time, the following conditions occur: (iii) a heart rate measurement is less than the heart rate measurement of step (c)(i), and (iv) the activity level falls below a third activity threshold.

11. (Withdrawn) The method of claim 10, wherein step (c) comprises identifying the second heart rate when an average activity level falls below the third activity threshold.

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12. (Withdrawn) The method of claim 10, wherein step (c) comprises identifying the second heart rate as the lowest heart rate measured during the predetermined period of time.

13. (Original) The method of claim 1, further comprising after step (a) filtering heart rate measurements to remove premature heartbeats.

14. (Original) The method of claim 1, wherein in step (d) the second heart rate is subtracted from the first heart rate to determine a measure of heart rate recovery.

15. (Withdrawn) An implantable cardiac device for determining heart rate recovery of a patient, comprising:

means for monitoring a changing heart rate of the patient and producing heart rate measurements;

means for identifying a first heart rate when at least one of the following conditions occurs: (i) at least one heart rate measurement exceeds a first heart rate measurement threshold, and (ii) an activity level of the patient exceeds a first activity threshold;

means for identifying a second heart rate when at least one of the following conditions occurs: (i) at least one heart rate measurement falls below a second heart rate measurement threshold, and (ii) an activity level of the patient falls below a second activity threshold; and

means for transmitting the first heart rate and the second heart rate to an external device to determine a measure of heart rate recovery.